

RECEIVED  
CENTRAL FAX CENTER  
NOV 19 2004

**AMENDMENTS TO THE CLAIMS**

**Claim 1 (currently amended)**

A cross-linked copolymer prepared from a reaction between two separate non-cross-linked polycarboxylic copolymers and a cross-linking agent having at least two amine functions, each non-cross-linked polycarboxylic copolymer comprises at least one non-cross-linked polysaccharide linked by a covalent bond to at least one non-saccharidic non-cross-linked polymer, and where

at least one of the polysaccharides and of the non-saccharidic non-cross-linked polymers is polycarboxylic.

**Claim 2 (previously presented)**

A copolymer of claim 1, wherein the polysaccharide is non-polycarboxylic.

**Claim 3 (previously presented)**

A copolymer of claim 2 wherein the non-cross-linked non-polycarboxylic polysaccharide is selected from the group consisting of agarose, agaropectin, amylose, amylopectin, arabinogalactan, carrageenans, cellulose, methylcellulose, chitosan, dextran, keratan sulfate, fucans and fucoidans, tragacanth, arabic, locust bean, guar gums and pullulan.

**Claim 4 (previously presented)**

A copolymer of claim 1 wherein the polysaccharide is polycarboxylic.

**Claim 5 (previously presented)**

A copolymer of claim 4 wherein the polycarboxylic polysaccharide is selected from the group consisting of glycosaminoglycans, pectinic and alginic acid.

**Claim 6 (previously presented)**

A copolymer of claim 4 wherein the polycarboxylic polysaccharide is glycosaminoglycane selected from the group consisting of hyaluronic acid, chondroitin sulfate, heparin, dermatan sulfate and heparan sulfate.

**Claim 7 (previously presented)**

A copolymer of claim 1 wherein the non-saccharidic polymer is non-polycarboxylic.

**Claim 8 (previously presented)**

A copolymer of claim 7 wherein the non-polycarboxylic non-saccharidic polymer is selected from the group consisting of poly(vinyl acetate), poly(vinyl alcohol), poly(acrylic esters), poly(methacrylic esters), poly(methacrylamides) and poly(acrylamides).

**Claim 9** (previously presented)

A copolymer of claim 1 wherein the non-saccharidic polymer is polycarboxylic.

**Claim 10** (previously presented)

A copolymer of claim 9 wherein the non-saccharidic polymer is a polycarboxylic acrylic polymer.

**Claim 11** (previously presented)

A copolymer of claim 10 wherein the polycarboxylic acrylic polymer is poly(acrylic acid) or poly(methacrylic acid).

**Claim 12** (previously presented)

A copolymer of claim 1 wherein the cross-linking agent is selected from the group consisting of diamines, natural and synthetic amino acids and polyamides.

**Claim 13** (previously presented)

A copolymer of claim 12 wherein the cross-linking agent is a diamine.

**Claim 14** (previously presented)

A copolymer of claim 1 wherein the polysaccharide is degradable by the microbial flora of the colon.

**Claim 15 (previously presented)**

A copolymer of claim 14 wherein the polysaccharide is selected from the group consisting of chondroitin sulfate, hyaluronic acid, pectinic acid, heparin, dextran, chitosan, amylose, pectin, alginates and xanthan.

**Claim 16 (previously presented)**

A copolymer of claim 15 wherein the polysaccharide is chondroitin sulfate, the other said non-saccharidic polymer is poly(acrylic acid) or poly(methacrylic acid), and the cross-linking agent is hexanediamine.

**Claim 17 (currently amended)**

A process for the preparation of cross-linked copolymers of claim 1 comprising reacting said two separate non-cross-linked polycarboxylic copolymers in an aqueous medium in the presence of an activator of said cross-linking agent.

**Claim 18 (previously presented)**

The process of claim 17 wherein the activator is selected from the group consisting of carbodiimides, quinoline derivatives and mixed anhydrides.

**Claim 19 (previously presented)**

A process for the preparation of non-cross-linked copolymers of claim 1, comprising grafting the monomer of the non-saccharidic polymer onto the polysaccharide in an aqueous medium, under an inert atmosphere and in the presence of a catalyst, which monomer will then polymerize under these reaction conditions.

**Claim 20 (previously presented)**

A pharmaceutical composition containing at least one active ingredient and, as an inert support or excipient, at least one cross-linked copolymer of claim 1.

**Claim 21 (previously presented)**

A pharmaceutical composition containing at least one active ingredient and, as an inert support or excipient, at least one copolymer of claim 14.

**Claims 22 to 27 (cancelled)**

**Claim 28 (previously presented)**

A method of treating a disease of the colon in warm-blooded animals comprising administering to warm-blooded animals in need thereof an effective amount of an active colon treating ingredient with an excipient of at least one copolymer of claim 1 for sustained release.

**Claim 29 (previously presented)**

The method of claim 28 wherein the active ingredient is absorbed at the colon level.

**Claim 30 (previously presented)**

The method of claim 30 wherein the active ingredient is released in the upper parts of the digestive tract.

**Claim 31 (previously presented)**

A cross-linked copolymer prepared from a reaction between at least one non-crossed-linked polysaccharide and at least one non-polysaccharide non-cross-linked polymer to link the two by a covalent bond to form a non-cross-linked polycarboxylic copolymer and reacting the latter with a cross-linking agent to form a cross-linked copolymer, at least one of the polysaccharides or non-cross-linked polymer being polycarboxylic.

**AMENDMENTS TO THE CLAIMS**

**Claim 1 (currently amended)**

A cross-linked copolymer prepared from a reaction between two separate non-cross-linked polycarboxylic copolymers and a cross-linking agent having at least two amine functions, each non-cross-linked polycarboxylic copolymer comprises at least one non-cross-linked polysaccharide linked by a covalent bond to at least one non-saccharidic non-cross-linked polymer, and where

at least one of the polysaccharides and of the non-saccharidic non-cross-linked polymers is polycarboxylic.

**Claim 2 (previously presented)**

A copolymer of claim 1, wherein the polysaccharide is non-polycarboxylic.

**Claim 3 (previously presented)**

A copolymer of claim 2 wherein the non-cross-linked non-polycarboxylic polysaccharide is selected from the group consisting of agarose, agarpectin, amylose, amylopectin, arabinogalactan, carrageenans, cellulose, methylcellulose, chitosan, dextran, keratan sulfate, fucans and fucoidans, tragacanth, arabic, locust bean, guar gums and pullulan.

**Claim 4 (previously presented)**

A copolymer of claim 1 wherein the polysaccharide is polycarboxylic.

**Claim 5 (previously presented)**

A copolymer of claim 4 wherein the polycarboxylic polysaccharide is selected from the group consisting of glycosaminoglycans, pectinic and alginic acid.

**Claim 6 (previously presented)**

A copolymer of claim 4 wherein the polycarboxylic polysaccharide is glycosaminoglycane selected from the group consisting of hyaluronic acid, chondroitin sulfate, heparin, dermatan sulfate and heparan sulfate.

**Claim 7 (previously presented)**

A copolymer of claim 1 wherein the non-saccharidic polymer is non-polycarboxylic.

**Claim 8 (previously presented)**

A copolymer of claim 7 wherein the non-polycarboxylic non-saccharidic polymer is selected from the group consisting of poly(vinyl acetate), poly(vinyl alcohol), poly(acrylic esters), poly(methacrylic esters), poly(methacrylamides) and poly(acrylamides).



**Claim 9 (previously presented)**

A copolymer of claim 1 wherein the non-saccharidic polymer is polycarboxylic.

**Claim 10 (previously presented)**

A copolymer of claim 9 wherein the non-saccharidic polymer is a polyarboxylic acrylic polymer.

**Claim 11 (previously presented)**

A copolymer of claim 10 wherein the polycarboxylic acrylic polymer is poly(acrylic acid) or poly(methacrylic acid).

**Claim 12 (previously presented)**

A copolymer of claim 1 wherein the cross-linking agent is selected from the group consisting of diamines, natural and synthetic amino acids and polyamides.

**Claim 13 (previously presented)**

A copolymer of claim 12 wherein the cross-linking agent is a diamine.

**Claim 14 (previously presented)**

A copolymer of claim 1 wherein the polysaccharide is degradable by the microbial flora of the colon.

**Claim 15 (previously presented)**

A copolymer of claim 14 wherein the polysaccharide is selected from the group consisting of chondroitin sulfate, hyaluronic acid, pectinic acid, heparin, dextran, chitosan, amylose, pectin, alginates and xanthan.

**Claim 16 (previously presented)**

A copolymer of claim 15 wherein the polysaccharide is chondroitin sulfate, the other said non-saccharidic polymer is poly(acrylic acid) or poly(methacrylic acid), and the cross-linking agent is hexanediamine.

**Claim 17 (currently amended)**

A process for the preparation of cross-linked copolymers of claim 1 comprising reacting said two separate non-cross-linked polycarboxylic copolymers in an aqueous medium in the presence of an activator of said cross-linking agent.

**Claim 18 (previously presented)**

The process of claim 17 wherein the activator is selected from the group consisting of carbodiimides, quinoline derivatives and mixed anhydrides.

**Claim 19 (previously presented)**

A process for the preparation of non-cross-linked copolymers of claim 1, comprising grafting the monomer of the non-saccharidic polymer onto the polysaccharide in an aqueous medium, under an inert atmosphere and in the presence of a catalyst, which monomer will then polymerize under these reaction conditions.

**Claim 20 (previously presented)**

A pharmaceutical composition containing at least one active ingredient and, as an inert support or excipient, at least one cross-linked copolymer of claim 1.

**Claim 21 (previously presented)**

A pharmaceutical composition containing at least one active ingredient and, as an inert support or excipient, at least one copolymer of claim 14.

**Claims 22 to 27 (cancelled)**

**Claim 28 (previously presented)**

A method of treating a disease of the colon in warm-blooded animals comprising administering to warm-blooded animals in need thereof an effective amount of an active colon treating ingredient with an excipient of at least one copolymer of claim 1 for sustained release.

**Claim 29 (previously presented)**

The method of claim 28 wherein the active ingredient is absorbed at the colon level.

**Claim 30 (previously presented)**

The method of claim 30 wherein the active ingredient is released in the upper parts of the digestive tract.

**Claim 31 (previously presented)**

A cross-linked copolymer prepared from a reaction between at least one non-crossed-linked polysaccharide and at least one non-polysaccharide non-cross-linked polymer to link the two by a covalent bond to form a non-cross-linked polycarboxylic copolymer and reacting the latter with a cross-linking agent to form a cross-linked copolymer, at least one of the polysaccharides or non-cross-linked polymer being polycarboxylic.